ABSTRACT

When a wavelength of a first laser beam with which a first recording medium including a first recording layer is recorded and reproduced is indicated as $\lambda 1$ (nm), a wavelength of a second laser beam with which a second recording medium including a second recording layer is recorded and reproduced as $\lambda 2$ (nm), the relationship between the wavelength $\lambda 1$ and the wavelength $\lambda 2$ is set to be expressed by $10 \leqq |\lambda 1 - \lambda 2| \leqq 120$. The first recording layer has a light absorptance ratio of at least 1.0 with respect to the wavelength $\lambda 1$. The light transmittance of the first recording medium with respect to the wavelength $\lambda 2$ is set to be at least 30 in both the cases where the recording layer is in a crystal state and in an amorphous state. In order to record and reproduce the optical multilayer disk with the above-mentioned characteristics, a multiwavelength light source with the following configuration is used. Wavelengths of fundamental waves with different wavelengths from injection parts formed at one end of a plurality of optical waveguides, which satisfy phase matching conditions different from one another and are formed in the vicinity of the surface of a substrate, are converted simultaneously, and the first and second laser beams are emitted from emission parts formed at substantially the same position at the other end of the optical waveguides. This enables an optimum optical system for high density recording and reproduction to be obtained.